Amendments to the Specification:

Please replace the Title section with the following amended Title section:

~~DESCRIPTION~~

~~Switching Power Supply~~

TITLE OF THE INVENTION

Switching Power Supply

CROSS-REFERENCE TO RELATED APPLICATION

This application is a Section 371 of International Application No. PCT/JP2003/010236, filed August 11, 2003, which was published in the Japanese language on March 11, 2004, under International Publication No. WO 2004/021554 A1, the disclosure of which is incorporated herein by reference.

Please amend the paragraph at page 11, line 11 through page 12, line 4, as follows:

When the second PWM signal VG2 from the control circuit 114 is driven high (high level) at time T2, the second switching device 104 and the third switching device 105 are simultaneously turned ON. When the second switching device 104 and the third switching device 105 are simultaneously turned ON as described above, an input voltage is applied to the primary winding 107a of the transformer 107 in the direction opposite to that at time T0. At this time, a voltage of the opposite polarity is also applied to the drive transformer 121, and the first synchronous rectifier device 108 is turned [[OFF]] ON by the first reverse, while the second synchronous rectifier device 109 is turned [[ON]] OFF by the second reverse. As a result, the voltage generated in the second secondary winding 107c of the transformer 107 is applied via the ~~second~~ first synchronous rectifier device [[109]] 108 to the smoothing circuit (110, 111).

Please amend the paragraph at page 26, lines 12 through 23 as follows:

Furthermore, in the first drive transformer control circuit 200, a second resistance 27, a second capacitor 28, a second diode 29 and a ~~second~~ first n-channel FET 30 are provided. The first n-channel FET 30 is

ON/OFF-driven according to the input first PWM signal VG1. In the first drive transformer control circuit 200, the configuration is such that the turn-on of the first n-channel FET is delayed by the second resistance 27 and the second capacitor 28. The turn-off thereof is carried out without delay.

Please amend the paragraph beginning at page 27, line 17 through page 28, line 2, as follows:

In the second drive transformer control circuit 201, a third resistance 37, a sixth capacitor 38, a fifth diode 39 and a second p-channel FET 40 are provided. The ~~first n-channel~~ second p-channel FET 40 is ON/OFF-driven according to the input second PWM signal VG2. In the second drive transformer control circuit 201, the configuration is such that the turn-on of the ~~first n-channel~~ second p-channel FET 40 is delayed by the third resistance 37 and the sixth capacitor 38. The turn-off thereof is carried out without delay via the fifth diode 39.

Please amend the paragraph beginning at page 48, lines 8 through 23, as follows:

In the waveform diagram of FIG. 6, part (a) represents the PWM signal output from the PWM control circuit 15, and part (b) represents the inversed PWM signal. Part (c) of FIG. 6 shows a waveform of a signal Q1 output from the first turn-on delay circuit 722. Part (d) of FIG. 6 shows a waveform of a signal Q2 output from the second turn-on delay circuit 723. Part (e) of FIG. 6 is a waveform of the voltage across the second drive switch [[705]] 725. Part (f) of FIG. 6 is a waveform of the applied voltage of the primary winding 800a of the drive transformer 800. Part (g) of FIG. 6 shows a waveform of the current of the drive transformer 800. Part (h) of FIG. 6 shows a waveform of a drive signal of the synchronous rectifier device 551.

Please amend the paragraph beginning on page 52, line 22 through page 53, line 2, as follows:

The series circuit of the [[first]] third capacitor 31 and the primary winding 32a of the first drive transformer 32 is connected across the third switching device 5. The fourth capacitor 33 and the third diode 34 are connected in series with the secondary winding 32b of the first drive transformer 32.

Please amend the paragraph beginning on page 64, line 4 through page 65, line 13, as follows:

When the third switching device 5 is turned OFF under an OFF signal of the PWM signal from the PWM control circuit 15 at time T3, the current of the primary winding 70a of the transformer 70 becomes continuous under the influence of the leakage inductance of the transformer 70. Therefore, the gate voltage of the first synchronous rectifier device 8 is charged via the first drive transformer 32, and when the voltage across the fourth switching device 6 drops to zero, the body diode of the fourth switching device 6 is turned ON. At the same time, the PWM waveform is inverted by the second inverter 18 serving as the second reverse, an ON signal is slightly delayed by the fourth driving circuit 59, and then the fourth switching device 6 is turned ON. At this time, by setting the delay time appropriately, the fourth switching device 6 can be turned ON after the drive voltage of the first synchronous rectifier device 8 is fully raised. At this time, the voltage of the primary winding 70a of the transformer 70 is zero and the energy stored in the transformer 70 is retained. The voltages generated in the secondary windings 70b and 70c of the transformer 70 are zero. The current flowing thorough the inductance device 10 is divided to flow through the first secondary winding 70b and the second secondary winding 70c of the transformer 70 via the first synchronous rectifier device 8 and the second synchronous rectifier device 9 in the ON state so that the energy stored in the transformer 70 is made continuous. At this time, the applied voltage of the inductance device 10 and the smoothing capacitor 11 becomes zero.

Please amend the paragraph beginning on page 69, line 18 through page 70, line 12, as follows:

In Embodiment 2, the operation has been described based on the full-bridge converter, but the present invention is not limited to such a configuration. For example, even when a half-bridge converter or a push-pull converter is used, to which a circuit for short-circuiting the transformer is added, the operation which is similar to that in accordance with Embodiments 1 and 2 mentioned above can be performed. In the case of such a configuration, as a circuit for short-circuiting the transformer, the series circuit of two switches corresponding to the timing of the ON/OFF operation of the second switching device 4 and the fourth switching

device [[5]] 6 shown in FIG. 7 is used, and the synchronous rectifier device is driven under the inverse signal of the voltage applied to each of these two switches. By configuring as mentioned above, a similar effect to that of the switching power supply in accordance with Embodiment 2 can be obtained.